EDITORIAL

Molecular insights into environmental microbes

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Admittedly, 'Molecular Insights into Environmental Microbes' as the title of this Thematic Issue may not sound particularly focused, as it accommodates about every microbial community living in whatever ecological niche on our planet. Yet, it was deliberately chosen to allow the compilation of disparate articles on entirely diverse systems, and to give authors as much freedom as possible to select their favorite subject. The result of this endeavor is a set of eight commendable review articles that perfectly reflect contemporary research on topical issues related to the activity of either well known or so far poorly explored microbes in dissimilar environments ranging from life in symbiosis, commensalism, and syntrophy to life in soil, lakes, ocean, and a seemingly hostile place such as the Antarctic. Subjects addressed are not only mechanisms of adaptation but also the implications of horizontal gene transfer, and the use of cutting-edge technology for genetic and biochemical analyses transpires through all articles.

It is now generally accepted that more than 95% of microbes living 'out there' wait to be explored in physiological terms, and the function of far more than a million genes and gene products need to be explained in mechanistic detail. Molecular microbiology is, therefore, undoubtedly the prime research discipline in the life sciences from which revolutionary concepts of how organisms make a living can be expected. We invite readers to think back only a few years! Were you prepared for the discovery that electron bifurcation is a fairly widespread mechanism of energy conservation in anaerobes? Would you have predicted that a bacterial species in anoxic environments oxidizes methane by generating its own oxygen to drive methane mono-oxygenase? Possibly not! One may not have to be a visionary to believe that environmental microbes will continue to provide an immense source for the discovery of novel life styles, new biochemical reactions and pathways, and unanticipated mechanisms of gene regulation.

We fellow-editors would like to thank all authors for their highly valued contributions and their efforts in making complicated issues 'simple, but not too simple' (*A. Einstein*). The journal production team is gratefully acknowledged for editorial polishing, wherever this was deemed necessary. We all hope that the articles included in this Thematic Issue will provide readers with information and inspiration for research and teaching.

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FEMS MICROBIOLOGY REVIEWS